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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/027,727  
Filing Date: December 21, 2001  
Appellant(s): HAN, CHENGHUA OLIVER

\_\_\_\_\_  
Fred C. Pruner Jr.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed on February 16, 2010 appealing from the Office action mailed August 11, 2009.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

This application was the subject of Appeal 2008-6047, in which the examiner was affirmed, in a Decision on Appeal that was decided on December 18, 2008.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:  
Claims 1, 6-7, 17-19, 23, 25, 28, 30, 33, 35, and 42-45 are pending claims that are rejected.

**(4) Status of Amendments After Final**

No amendments after final have been filed. A request for reconsideration was filed on 10/13/2009 but the arguments were not convincing.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

A. Claims 1, 33, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Frye et al. (041).

B. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (041) in view of Turechek (857).

C. Claims 6 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (041) in view of Chawla et al. (008).

#### **WITHDRAWN REJECTIONS**

The following grounds of rejection (D and E) are not presented for review on appeal because they have been withdrawn by the examiner. The rejection of claims 1, 7, 23, 25, 33, 35, 42-43, and 45 as being anticipated by Willow (505) and the rejection of claims 6 and 44 under 35 USC 103 as being obvious over Willow (505) in view of Chawla et al. (008). Please note the result of the Pre-Brief Appeal Conference Decision as mailed on 12/15/2009.

#### **(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

#### **(8) Evidence Relied Upon**

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

German Patent DE 40 01 041 A1	Frye et al.	7/18/1991
U.S. Patent 2,742,857	Turechek	4/24/1956
U.S. Patent 5,619,008	Chawla et al.	4/08/1997
English translation of DE 40 01 041 A1		

The following ground(s) of rejection are applicable to the appealed claims:

Frye et al. (041) disclose a perforating system comprising:

- |  |                       |
|--|-----------------------|
| a) a charge case of a shaped charge;                   | figs. 1-3             |
| a') the charge case having a wall and recessed region; | 10, 16 in combination |
| b) an explosive in the charge case;                    | 14                    |
| c) a liner in the charge case; and                     | 12                    |
| d) an axially oriented slot in the wall.               | [26, 30] or [32, 34]  |

B. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (041) in view of Turechek (857).

Frye et al. (041) apply as previously recited. However, undisclosed is a perforating gun string including a loading tube and associated shaped charge carrier. Turechek (857) teach a perforating gun string that includes a loading tube and associated shaped charge carrier (6, 15). Applicant is selecting a well known usage for shaped charges and putting them to use as they are commonly known in this art with expected or predictable results (see KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 406 (2007)). It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Turechek to the Frye et al. shaped chare assembly and have a shaped charge assembly with associated loading tube and shaped charge carrier.

C. Claims 6 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (041) in view of Chawla et al. (008).

Frye et al. (041) apply as previously recited. However, undisclosed is a recessed fracture region that is a v-shaped cut. Chawla et al. (008) teach a recessed fracture region that is a v-shaped cut 46. Applicant is substituting one type of recessed fracture region for another in an analogous art setting with expected or predictable results (see KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 406 (2007)). It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Chawla et al. to the Frye et al. perforating system and have a perforating system with a differently shaped recessed fracture region.

#### **(10) Response to Argument**

A. Applicant's arguments with regard to the rejection of claims 1, 33, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Frye et al. (041) are addressed as follows. It is argued that items 26, 30, 32, and 34 do not qualify as slots. In response, with regard to 26, 30; note that item 30 is an adhesive (see English translation; page 2, last paragraph). The adhesive 30 is located in the slot between items 10 and 16 of the shaped charge housing. During firing of the shaped charge and separation of ring 10 from base 16; the adhesive 32 is fractured along the slot in which it is contained (see fig. 1) (see English translation page 2, last 2 paragraphs). With regard to 32, 34; the English translation explicitly states that this disclosure is directed to break sections that are described as circumferential ring slots (see page 3, lines 12-23 of the English translation).

It is further argued that the grooves or slots do not extend along an axis that is axially oriented. In response, note that what applicant has claimed is "at least one axially oriented slot". Note that slots 32 and 34 extend in a radial or ring fashion but also contain an axially oriented component associated with the depth of the slot and its associated orientation (see 32 in fig. 3). With regard to the slot that contains adhesive 30 (see fig. 1) clearly the middle portion of the slot that contains adhesive 30 is axially oriented (see fig. 1). It is argued that there is no fracturing about 26, 30 with regard to the body 16. In response, it is the adhesive 30 contained in the slot between 10 and 16 that fractures along the lines of the created slot bordering 10 and 16. It is argued that there is no recitation of fracturing about a groove or slot when the explosive charge is fired. In response; note page 2, last 2 paragraphs of the English translation. Further, the claim limitations do not require the groove or slot to fracture during firing of the explosive charge because applicant has only claimed "at least one axially oriented slot in the wall about which the charge case **is adapted to fracture** in response to detonation". It is argued that the claim limitation directed to a wall that defines a recessed region in which a liner is disposed and in which an explosive material is received is not present. In response, note wall assembly 10, 16 and the liner 12 and explosive 14 that is enclosed in the recess defined by wall assembly 10, 16 (see figs. 1-3).

B. Applicant's arguments with regard to the rejection of Claim 17 being rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (041) in view of Turechek (857) are addressed as follows. Most of applicant's arguments are directed to Frye et al. and not to the combination of Frye et al. in view of Turechek. These arguments have already been

addressed in section A above. Applicant argues that Turechek is not directed to a perforating gun string. In response, note the string of perforating shaped charge arrangements as illustrated in figs. 1-5 and the associated written description. Applicant argues that one of ordinary skill would have no plausible reason to combine Frye and Turechek to provide a list of missing claim limitations. In this regard, the supposed missing claim limitations are explicitly disclosed as being contained solely present in Frye except for the perforating string with associated plurality of shaped charge liners. With regard to the issue of motivation to combine; shaped charge liners are commonly known by anyone of skill in this art to be used in both perforating guns as well as shaped charges in war heads. The idea that any particular shaped charge could be used in either or both environments would require a level a skill considerably less than the requirement of one of ordinary skill in this art. Consequently, the issue of motivation to combine is clearly met (see *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007)).

C. Applicant's arguments with regard to the rejection of Claims 6 and 44 being rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (041) in view of Chawla et al. (008) are addressed as follows. It is argued that Chawla et al. is directed to liners and in particular to a manufacturing process for liners. This is accurate. However, Chawla et al. is also directed to fracturing a wall via an applied force about a slot or groove in the explosive art. This is clearly an analogous art environment in the context of both the explosive art as well as the art associated with breaking a wall via an already scored, slotted, or grooved wall configuration. With regard to the issue of any plausible reason to combine or motivation to combine; the issue of analogous art setting has already been

addressed and shown. The motivation is merely substitution of one scoring slot configuration specifically designed for fracture along the slot configuration for another in an analogous art setting (see KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 406 (2007)). Applicant appears to be of the opinion that one of ordinary skill would not have enough imagination to know that different types and shapes of scoring slots could be used in the Frye et al. device. Such is the case even after an explicit demonstration of alternative shaped scoring slots (compare slots 32 and 34 of Frye et al.) and even after an explicit teaching of an alternative type of scoring slot arrangement (see 46 in Chawla et al.). It is further argued that there is no reason for one of ordinary skill in this art to substitute the Chawla et al. liner for the liner of Frye et al. In response, this argument makes it quite clear that applicant does not understand the clearly stated grounds for motivation as stated by the examiner. It is the recessed fracture region or scoring slot arrangement that is being substituted for **and not the liner**. In particular, a v-shaped scoring slot is being substituted for a u-shaped scoring slot as taught in 32 of Frye et al. This substitution has nothing to do with substituting liners as is now being argued by applicant. With regard to the argument that the score marks do not exist after manufacturing. This is also not directed to the motivation to combine. Regardless of when or where the fractured scoring is taught in Chawla et al. including during the manufacture process; v-shaped scoring slots designed to fracture about the scoring are taught in Chawla et al. (46; col. 3, lines 64-67) and this is the teaching being relied upon by the examiner.

**(11) Related Proceeding(s) Appendix**



This application was the subject of Appeal 2008-6047, in which the examiner was affirmed, in a Decision on Appeal that was decided on December 18, 2008.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Stephen M. Johnson/

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